

# 101 Ways to Green your School

*A resource for the USGBC-Missouri Gateway Chapter's Green Schools Quest*

The USGBC-Missouri Gateway Chapter is challenging public and private schools in Missouri and Southern Illinois to devise and implement, with the help of a green mentor, the most creative, effective and no or low cost sustainable practices for their schools. This guide is meant to assist participating schools and their mentors select projects to implement.

## Categories

This guide is organized using Leadership in Energy and Environmental Design (LEED) green building rating system categories. The categories are:



**Sustainable Sites** includes sustainable transportation, site design and management, and rainwater management strategies.



**Water Efficiency** includes strategies to conserve potable (drinking) water, outdoor water, and process water (water used by building systems).



**Energy and Atmosphere** includes strategies to reduce energy demand, increase energy efficiency, measure building performance, renewable energy, and reduce greenhouse gas emissions.



**Materials and Resources** emphasizes sustainable purchasing practices and solid waste management and reduction.



**Indoor Environmental Quality** includes strategies that promote healthy indoor environments and green cleaning.



**Innovation in Design and Operations** includes a variety of strategies to encourage community engagement, spread awareness, and explore sustainability.

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## Key

### Investment

blank	potentially no cost
\$	low cost
\$\$	moderate to high cost

### Age Group

C	Child to Young Adult (K-12)
YA	Young Adult (Middle to High School)
A	Adult Oriented Tasks
P	Policies

### Impact Areas

Each strategy's key areas of impact are indicated in the water, energy, habitat/nature, reduce waste and health columns.



# Sustainable Sites



Investment	Age Group	Water	Energy	Habitat/Nature	Reduce Waste	Health
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## Transportation

1	Create a program to encourage or assist students to walk or bike to school when the weather is nice.		C		●			●
2	Work with your school's transportation manager to create "Safe Routes" to school. <i>Resources: www.saferoutesinfo.org</i>		YA		●			●
3	Start a walking school bus program.		C		●			●
4	Be bicycle friendly - install and maintain bicycle racks.	\$\$	YA		●			●
5	Develop a carpool plan to pair students that normally walk to school with other students when the weather is bad and to pair teachers and staff.		C		●			●
6	Sign up for RideFinders' free SchoolPool program for K-12 schools that helps parents form carpools to take students to and from school.		C, A		●			●
7	Dedicate parking for carpool, low-emitting, and fuel-efficient vehicles close to the school entrance.	\$			●			●
8	Implement a "No-Idling" policy for cars and buses, and display 'No-Idling Zone' signs at your school. The St. Louis Regional Clean Air Partnership provides free no-idling signs as part of the "Turn Your Key, Be Idle-Free" campaign. <a href="http://www.cleanair-stlouis.com/no-idle-initiative/">www.cleanair-stlouis.com/no-idle-initiative/</a>		P		●			●
9	Determine how much fuel and money the school can save and how much pollution can be reduced by replacing old school vehicles with low-emitting & fuel-efficient ones.		YA		●			●

## Site Design and Management

10	Provide natural habitats (butterfly gardens, butterfly houses, bird baths, and plants) that bees, birds and other insects and small animals like.	\$	C			●		
11	Remove non-native and invasive plants and install native plants that will not require irrigation.	\$	C	●		●		
12	Develop an outdoor integrated pest management program and use non- or least-toxic methods of pest control to reduce exposure to harmful chemicals.		C			●		●
13	Encourage school officials to use downward pointing (full cutoff) outdoor light fixtures to reduce "light pollution" that can disturb wildlife and neighbors.		YA		●	●		
14	Research and find effective snow and ice melt that is not harmful to the environment, wildlife, and water supply.		YA	●		●		
15	Start a tree planting program to provide beauty, shade, and habitat. Select plant species that do not require irrigation once they are established.		C		●	●		

## Rainwater Management

16	Design and build a rain garden, and install native plants that thrive at times when the soil is wet and when it is dry.	\$\$	C	●		●		
17	Plant and maintain a garden, vineyard, orchard, or all three. If possible, irrigate it with captured rainwater.	\$\$	C	●		●		
18	Install small experimental vegetated roofs and/or pervious pavement that drains water back into the ground. Determine the rainwater impact if these were used on larger surfaces.	\$\$	YA	●	●	●		

## Notes and Other Ideas



# Water Efficiency



Investment	Age Group	Water	Energy	Habitat/Nature	Reduce Waste	Health
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## Potable Water Use

19	Quantify the amount of water your school is using for irrigation, hot water, toilet fixtures and faucets - display results for everyone to see. Develop a water reduction plan.		C	●				
20	Post signs and reminders in bathrooms and classrooms to reduce water use.		C	●				
21	Develop a plan to eliminate the use of bottled water at school. Encourage the use of drinking water from fountains and filling reusable bottles.		C	●		●		
22	Develop a policy to replace old, inefficient toilets and faucets with low-flow toilet fixtures and waterless urinals.		P	●				
23	Develop a plan to install aerators / restrictors and motion sensors on sinks to reduce the amount of water that is used.		YA	●				

## Outdoor Water Use

24	Eliminate landscape irrigation or use efficient techniques.		YA	●				
25	Capture rainwater and use it to water indoor plants, greenhouses, courtyards, and gardens.	\$	C	●				
26	Determine how much water falls on your school's roof and impervious surfaces. Develop ideas on how you might put it to use.		C	●				

## Process Water Use

27	Determine how much water the school's mechanical systems use and whether or not any of it can be reused for other needs.		YA	●				
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## Notes and Other Ideas



# Energy and Atmosphere?



Investment	Age Group	Water	Energy	Habitat/Nature	Reduce Waste	Health
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Energy Demand						
27	Post signs and reminders to turn off the lights.		C	●		
28	Open the blinds to use natural light instead of light fixtures whenever possible.		C	●		●
29	When working after hours, teachers should consider using desk lamps instead of overhead classroom lighting.		A	●		
30	Install photocells (daylight sensors) to turn lights off when a room or part of a room is receiving sufficient daylighting.	\$\$	A	●		
31	Install motion or occupancy sensors to turn lights off when a room is not occupied or when there is sufficient daylighting.	\$\$	A	●		
32	Remove bulbs from fixtures in areas that have more light than necessary.		A	●		
33	Set exterior lighting on a timer to turn on at dusk and turn off during the early morning hours.	\$\$	A	●		
34	Set computers to sleep or standby during the day; shut them down at the end of the day.		A	●		
Energy Efficiency						
35	Install vending machine electricity regulators.	\$	A	●		
36	Develop a plan to replace inefficient light fixtures, lamps, and bulbs with efficient varieties.		YA	●		
37	Determine the ENERGY STAR rating of the building and get your school certified <i>Resources: www.energystar.com</i>		YA	●		
38	Set and follow a schedule for temperature and lighting settings based on different times, days, and seasons.		YA	●		
39	Improve the efficiency or upgrade the windows, doors, insulation, and the roof (the building "Envelope" or "Shell.")	\$\$	A	●		
40	Determine efficiency of windows and doors' caulk and weather-stripping. Improve when possible	\$	A	●		
41	Install solar control window films to reduce heat gain in the summer and add insulation in the winter.	\$	A	●		
42	Engage a commissioning service to make sure that building energy systems operate as intended.	\$\$	A	●		●
Performance Measurement						
43	Determine how much energy your school uses for heating, cooling, ventilation, lighting, and outlets. Display results for everyone to see.		YA	●		
Renewable Energy						
44	Explore ways your school can purchase offsite renewable energy: solar, wind, geothermal and biomass. Establish how much pollution can be reduced by using renewable energy.		YA	●		
45	Investigate the costs of installing different types of renewable energy sources at the school: solar, wind, geothermal, biomass. Determine what rebates and incentives are available.		YA	●		
46	Determine how many photovoltaic panels would be needed to power your school's exterior lamps. Figure out where they could be located and provide a layout.		YA	●		



# Energy and Atmosphere



		Investment	Age Group	Water	Energy	Habitat/Nature	Reduce Waste	Health
<b>Greenhouse Gas Emissions Reduction</b>								
47	Determine your school's Greenhouse Gas Emissions (GHG Emissions) footprint; set targets to reduce emissions.		YA		●			●
48	Develop a climate action plan to establish ways to meet Greenhouse Gas Emission reduction goals.		YA		●			●
49	Calculate emissions reductions based on your energy savings.		YA		●			●
<b>Notes and Other Ideas</b>								

*Please reference additional ENERGY projects and ideas on the separate ENERGY resource documents developed for the 2018-19 Green Schools Quest!*



# Materials and Resources



Investment	Age Group	Water	Energy	Habitat/Nature	Reduce Waste	Health
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Sustainable Purchasing						
50	Develop an Environmentally Preferable Purchasing Policy.		P			●
51	Develop a plan to purchase office supplies and consumables that contain recycled content (paper, pens, etc.)		YA			●
52	Purchase ENERGY STAR labeled electrical products for classrooms, offices, kitchens, and outdoors.		P	●		●
53	Replace gasoline powered equipment with electric powered equipment.		P	●		●
54	Use rechargeable batteries within the school.		P	●		●
55	Purchase light bulbs, lamps, and electronics with no-to-low amounts of mercury, lead, and other hazardous substances.	\$	P	●		●
56	Develop a policy requiring future light bulb, lamp, and electronic purchases contain no-to-low amounts of mercury, lead and other hazardous substances.		P	●		●
57	Find out where certified wood that has been responsibly harvested can be purchased.		YA		●	●
58	Develop policy requiring sustainable purchasing for construction projects (local materials, recycled content and/or rapidly renewable.)		P			●
Solid Waste Management						
59	Reuse furniture from within the school, other schools or from other people or places.		YA			●
60	Start an OSCAR (Office Supply Collection and Reuse) program for staff and students to find unwanted but usable school / office supplies. <i>Resources: www.ithaca.edu/rempevents/oscar</i>		YA			●
61	Implement a Solid Waste Management Policy: list what gets recycled, composted, reused and land-filled.		P			●
62	Start a school-wide recycling program, classroom by classroom. <i>Resources: www.paperrecycles.org</i>		C			●
63	Print double-sided paper, or on half the page.		C			●
64	Send electronic correspondence instead of hardcopies.		YA			●
65	Begin a program to donate, reuse or properly dispose of "E-Waste" or electronic equipment.		YA			●
66	Begin a program to compost biodegradable materials onsite or offsite.		YA			●
67	Carry your trash around for one, two or even five days to get a sense of how much each student consumes.		C			●
68	Set-up a battery, cell phone, and / or printer cartridge community collection center; turn it into a fundraising opportunity.		C			● ●
69	Look through your trash (i.e., "Dumpster Dive") to see what is actually being consumed within the school; Identify items that could be reused, recycled or disposed of in another way.		C			●
70	Donate left-over / unwrapped food and used goods or equipment. (www.rockandwrapitup.org)		C			●



# Materials and Resources



Investment	Age Group	Water	Energy	Habitat/Nature	Reduce Waste	Health
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Solid Waste Management, continued						
71	Mulch or compost landscaping waste (grass clippings, leaves, branches) to divert it from the waste stream. Use the mulch to reduce watering.		C	●		●
72	Track the products your school recycles to determine what happens to them after they leave your school - from recycling to reuse. Visit a recycling plant to learn more.		C			●
73	Eliminate the use of plastic water bottles at your school; find suitable replacements.		C			●
74	Hold a waste-free lunch day once per month.		C			●
75	Create a sculpture from found and recycled materials.		C			●
76	Require sustainable waste management for construction projects to reduce wastes that otherwise would be sent to a landfill. Set a minimum goal of perhaps 50% or 75%.		C			●
77	Have a Green Team of student monitors in charge of recycling.		C			●
78	Work with a local Goodwill, the Salvation Army, Boy Scouts, Girl Scouts or other not-for-profit service group on recycling or reuse of materials for class projects.		C			●
79	Raise funds for events through recycling and reuse programs.		C			●
80	Build a garden shed from salvaged materials.		C			●
Notes and Other Ideas						



# Indoor Environmental Quality



Investment	Age Group	Water	Energy	Habitat/Nature	Reduce Waste	Health
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Indoor Environmental Quality						
81	Borrow a carbon dioxide sensor. See how the levels of CO2 change with different numbers of people and different activities in the room.		YA			●
82	Set-up a hand washing program to keep everyone healthy.		C			●
83	Use high efficiency air filters.	\$	P			●
84	Install and maintain entryway mats or grills to keep dirt or particles from entering the school.	\$	A			●
85	Develop a green indoor integrated pest management program to reduce human exposure to harmful chemicals.		YA			●
86	Require air filters and other Indoor Air Quality management practices during construction.		P			●
87	Use paints and coatings that have no-to-low odor.		P			●
88	Use adhesives, sealants and finishing materials with no-to-low VOCs.		P			●
89	Use environmentally certified carpeting when replacing old carpeting or adding new.		P			●
90	Hold a "Green the Classroom" day to improve classroom indoor air quality; clean the clutter and remove undesirable cleaning and maintenance products.		YA			●
91	Learn what chemicals are in the finishes and / or other building materials in your classroom; find out which ones are on the Chemical Red List.		YA			●
Green Cleaning						
92	Implement a green cleaning policy using non-toxic cleaning materials and sustainable products, equipment and environmentally preferable paper products.		P			●
93	Require procedures for safe handling and storage of cleaning chemicals.		P			●
Notes and Other Ideas						





# Innovation in Operations



Investment	Age Group	Water	Energy	Habitat/Nature	Reduce Waste	Health
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Innovation in Operations						
94	Start or join a school Green Team or Sustainability Club. Be sure to engage students, faculty, administration, custodial and grounds staff, and parents!		YA	●	●	●
95	Pursue LEED Certification for existing buildings, or for new buildings and major renovations.		P	●	●	●
96	Pursue recognition as a green school through programs such as Green Ribbon Schools, Eco-Schools USA, Project Learning Tree Green Schools!, or other school sustainability frameworks.		P	●	●	●
97	Participate in a Green School Challenge.		C	●	●	●
98	Set-up a fundraising program with proceeds going to a green fund to buy a compost bin, a solar panel, etc.		YA	●	●	●
99	Integrate sustainability curriculum into classes. ( <a href="https://learninglab.usgbc.org/">https://learninglab.usgbc.org/</a> )		C	●	●	●
100	Have a sustainability themed science fair.		C	●	●	●
101	Calculate the cost impact of sustainable building (how much does it cost vs. save?)		YA			
102	Measure and share your resource savings results to spread awareness and recognition within your school and community.		YA	●	●	●
103	Bring sustainability home to your family.		C	●	●	●
104	Bring sustainability into your community.		C	●	●	●
105	Participate in CEFPI School of Future Design competition (grades 5 - 8) Resources: <a href="http://www.cefpi.org">www.cefpi.org</a>		YA	●	●	●
106	Chart the path of the sun from morning to afternoon in different seasons. Use window mullions and tape markings on the floor or sticks and stones outside.		C		●	
107	Build a sundial to keep time.	\$	C		●	
108	Use organic and locally grown food in the cafeteria where possible.		P			●
109	Start student kitchens featuring locally grown and/or organic foods and food from a school garden.	\$	C			●
110	Start a worm bin.	\$	C		●	●
111	Build a school weather station.	\$	C		●	
112	Visit a pond or stream. Identify the plant and animal species at the edge, 3-5 feet out from the edge and 3-5 feet on land from the water's edge. How are they different?		C	●	●	
113	Establish a place for a natural habitat. Identify the plant, insect and animal species found there. Create the natural habitat and after it is established it is established identify the species again and note changes.		C		●	
114	Organize a campus, park or waterway clean-up day.		C		●	●



## Innovation in Operations



	Investment	Age Group	Water	Energy	Habitat/Nature	Reduce Waste	Health
<b>Innovation in Operations, continued</b>							
115		C					●
116		C	●	●	●	●	●
117		C		●			
<b>Notes and Other Ideas</b>							